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State of Utah
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DIVISION OF OIL, GAS AND MINING

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April 21, 1993

TO: Minerals File

FROM: D. Wayne Hedberg, Permit Supervisor

RE: Site Inspection, Jumbo Mining Company, Drum Mine, M/027/007, Millard County, Utah

Date of Inspection: April 14, 1993
Time of Inspection: 1130 - 1530
Conditions: Cool, clear, light breeze
Participants: Dave Hartshorn, JMC; Rody Cox, BLM; Lowell Braxton, Tom Mitchell & Wayne Hedberg, DOGM

Purpose of Inspection: Evaluation of current operational state and site familiarization for DOGM management and legal counsel.

A joint inspection was performed by DOGM and BLM staff to evaluate the current status of operations at the Drum Mine. DOGM management and legal counsel wanted to see the mine firsthand to assist them in making future management decisions pending the final outcome of litigation between Jumbo Mining Company (JMC) and Western States Minerals Company (WSMC) regarding disputed reclamation responsibilities.

A brief discussion/overview was conducted initially with Dave Hartshorn at the Drum Mine office. We looked at a series of more recent (1991) maps/plates describing certain onsite features/facilities that Mr. Hartshorn indicated had been provided to the regulatory agencies (DWQ, BLM, & DOGM?) as part of the ongoing review/permitting process for the new heap leach pad. This was followed by a general inspection of the principal mine site facilities/properties currently under the approved permit (and/or amended application).

An initial visual overview of the existing heap leaching and processing facilities areas was performed from the top of heap #3. We then drove around the perimeter of the heap leach areas stopping briefly to inspect the North and South

Pits. We proceeded on to the present locations of the topsoil stockpiles and the process solution ponds. Mr. Hartshorn indicated that JMC would be upgrading both of the existing ponds to include two additional synthetic liners over the existing hypalon liner and a new leachate collection system.

Our next stop involved the inspection of two vegetation test plots that JMC has voluntarily implemented to try and determine what plant species may be most adaptable/successful for final minesite reclamation. Both test plots are situated close to and immediately adjacent to leach pad HG#2. Mr. Hartshorn indicated that both sites have had @6 inches of soil placed upon top of wasterock material. The first test plot was broadcast seeded and raked in the fall(?) of 1991. It is entering its second growing season. It was seeded with ladak alfalfa, siberian crested wheatgrass, and fourwing saltbush. Russian thistle and kochia have been the predominant invader species observed thus far. However, a few grasses (unknown species) were observed just starting to grow on the plot.

Mr. Hartshorn indicated that the second test plot has more recently (within last 2 weeks?) been reworked and reseeded. He has split this plot into 3 separate sections; all have @6 inches topsoil, two sections have been ripped/scarified, 2 sections have also been fertilized, and all were reseeded (broadcast at @20 lbs/acre - seedmix as above). Mr. Hartshorn indicated he has been watering this test plot every 2-3 days. No evidence of seed germination was observed at the time of our inspection.

We discussed the shallow perched aquifer system which has shown some cyanide contamination and asked if the proposed cut-off trench had been constructed yet. Mr. Hartshorn stated they had not received clearance from the Division of Water Quality yet. He took us to the proposed location for the interception trench and showed us the series of drill holes (piezometers) which JMC has drilled to help define the extent and gradient of ground water flow for this aquifer. Most of the shallow open drill holes had water in them at the time of our inspection.

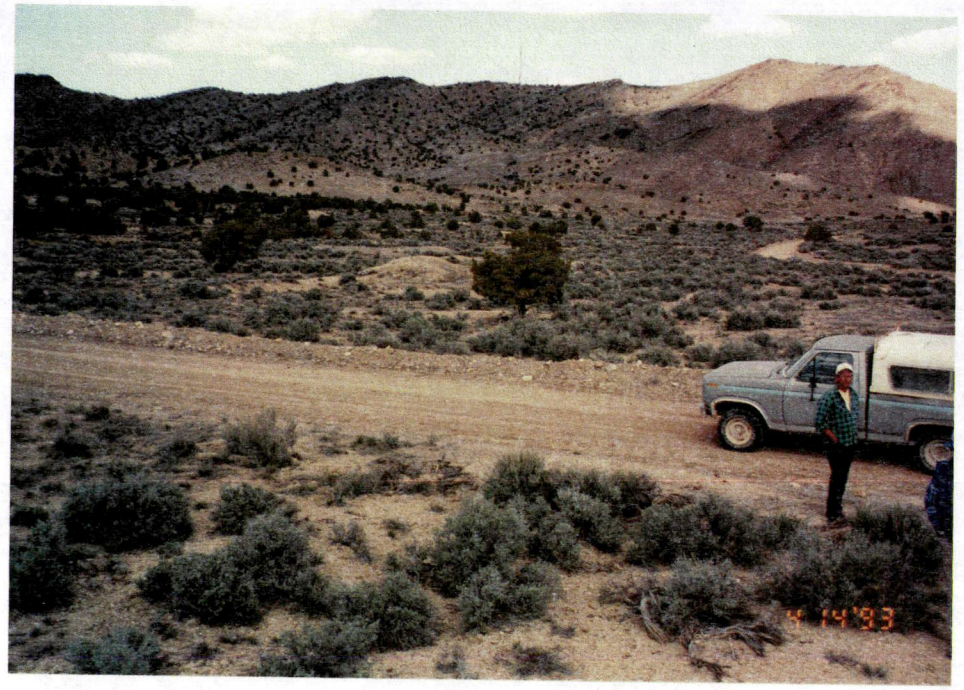
Our next stop was at the Mizpah pit location. The proposed pit has not received final DOGM approval yet, but has received BLM approval (pending filing of the reclamation bond). Mr. Hartshorn indicated that all exploration drill holes outside of the actual pit development area have been properly plugged.

We proceeded on to the Alto pit next. On the way, we stopped to look over a potential topsoil borrow area located approximately 2 miles north(?) of the Drum mine site. It is a lowland area adjacent to the Alto access/haul road and appears to have a significant amount/depth of salvageable soil material accumulated. The Alto site has been partially developed, but mining has been suspended and probably will not resume until the new heap leach pad is approved.

The reclaimed Monarch pit was our next stop. In 1991(?) this pit area was partially backfilled with wasterock, regraded and seeded. It is a dry, harsh site with a very coarse, rocky surface, minimal fines and no salvageable topsoil was applied/available for reclamation. Mr. Hartshorn indicated they tried to work a hydroscopic soil amendment into a portion of the reclaimed area a year ago. No observable increase in revegetative success has been noted. Some of the native shrubs are showing signs of growth again, poking through in areas of thinner wasterock cover. We did note some early growth of bunch grasses, rabbit brush and a few forbs on the site. Overall, the site shows very poor revegetative success. Some supplemental revegetation effort and additional regrading work may be necessary before the Division can consider releasing this site. An important factor in achieving some degree of reasonable revegetative success, may be to implement some control mechanism to minimize the indiscriminant grazing by domestic sheep in the area. Temporary fencing of the reclaimed areas may be one possible option.

Our last stop was at the Clara B test pit which has also been reclaimed. It was originally developed under an exploration permit. The pit has been totally backfilled and regraded. Recontouring work is acceptable, but revegetative success is minimal. Mr. Hartshorn indicated that they did not get a chance to seed the site until sometime after the regrading work was conducted. The subsequent soil crusting may be a factor in the poor vegetation success. Better plant growth was noted on some of the adjacent reclamation work performed by Gold Fields Mining Company which was done about the same time as JMC's Clara B reclamation.

jb
cc: Rody Cox, BLM
Dave Hartshorn, Drum Mine
Ed King, JMC
Lowell Braxton, DOGM
Minerals staff (route)
M027007.ins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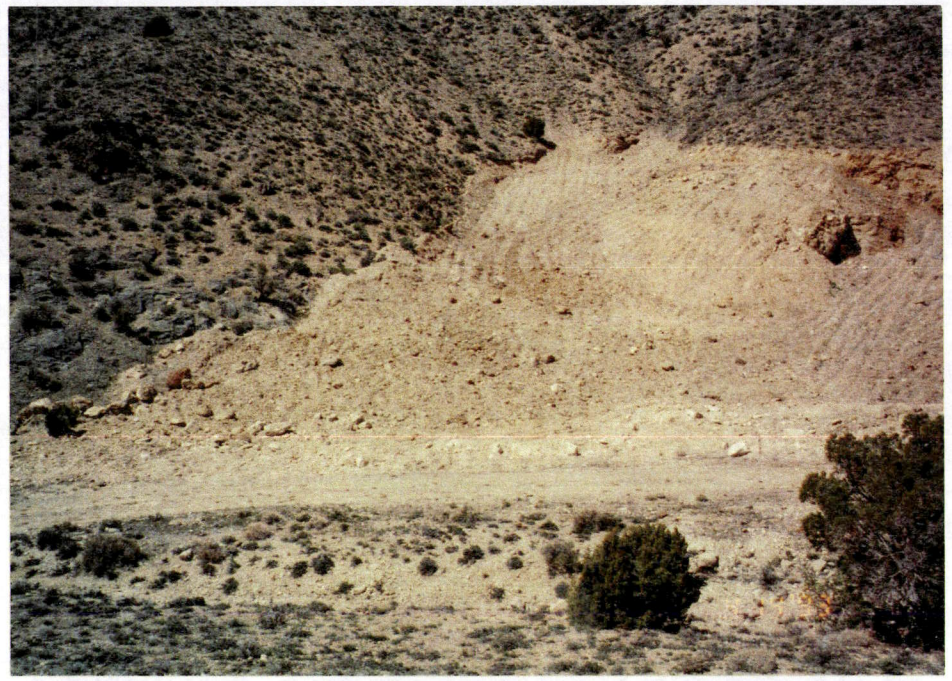

M/027/007
View of possible topsoil
"borrow area"
@ 2 miles North of mine site
along road to Alto Pit
* Note prelaw "dozer trenches/mounds"

M/027/007
"Proposed location for
interception trench" to
drain perched aquifer that
has traces of cyanide present.
(just this side of fence line)
in foreground

Monarch test pit (overview)
"reclaimed" ??
* note ripping "down" the contour!

M/027/007
another view of area that could
serve as a topsoil "borrow source"
* Note old prelaw "dozer trenches"/mounds
in foreground

M/027/007
another view (longitudinal) of
proposed location for
"interception trench"

M/027/007
Proposed area for "new" heap leach
pad. (Just left of existing heap)

m/027/007

TEST PLOTS

TEST PLOTS

m/027/007
Testplot # 2

View from east looking west

m/027/007
Testplot # 2

View from west looking east

TEST PLOTS


4 14'93

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2ndary topsoil stockpile area
just South West (?) of existing LG #2
heap + adjacent to new revveg
test plots.

M/027/007

Monarch Pit – Reclaimed?